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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/518,902	12/23/2004	Andreas Fuchs	32860-00821/US	5390
30596	7590	12/28/2007		
HARNESSE, DICKEY & PIERCE, P.L.C. P.O.BOX 8910 RESTON, VA 20195			EXAMINER LEJA, RONALD W	
			ART UNIT 2836	PAPER NUMBER
			MAIL DATE 12/28/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/518,902

Applicant(s)

FUCHS, ANDREAS

Examiner

Ronald W. Leja

Art Unit

2836

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 18 September 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-3,5,6,9,10,14,15 and 17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3,5,6,9,10,14,15 and 17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 December 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 6, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brenneisen.

Brenneisen discloses in Figure 1, a circuit arrangement having short-circuit protection with a voltage link converter. There is a intermediate-circuit capacitor (7) in parallel with switching paths having series-connected switching elements (11, 14), (12,15) & (13,16) and a short-circuit thyristor (17) in parallel with the capacitor and series-connected protective diode pairs (11a,14a), (12a,15a) & (13a,16a). There is a connection point between two switching elements (i.e. between 11 and 14) is connected to a connection point between two series-connected diodes (i.e. between diodes 11a and 14a). The protection is on the load side for Claim 3 and for Claims 6 & 15, there is an inductance (5) in series with the thyristor. Claim 2 requires that the protection be located on the power supply side. Even though the protection is connected to both the power supply side and load side in Figure 1 of Brenneisen, it would have been obvious to apply the protection any and/or all sides requiring the protection, such as to the power supply side, especially if the power supply side had a switching converter, so as to increase the reliability and durability of the device to any undesired pulses and/or short-circuit conditions, which could burn-out the switches. This would lead to increased reliability of the design. The instant claim language

requires IGBTs for the switching elements. Brenneisen discloses thyristors, but it is well known in the converter art to utilize IGBTs. It would have been obvious to utilize IGBTs for the switching elements as they are more easily shut-off than thyristors and handle a faster voltage growth during turn-off, and thus, the IGBTs can be more easily protected from large faults, by more quickly turning them off. As far as Claim 14, Brenneisen discloses the use of an inductance (5) in series with the thyristor (17).

Claims 5, 9, 10 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brenneisen in view of Chaudhry (6,188,557).

Claims 5, 9 and 10 add the use of additional diodes in the protective circuit. Chaudhry teaches in Figure 2A, the use of series-connected diode pairs (126-132) in parallel with a protective element (138) and the use of additional diodes (134,136). It would have been obvious to incorporate the overvoltage teachings of Chaudhry to any circuit requiring protection, such as, the power system of Brenneisen and use two additional diodes in the protective circuit as a means to ensure a directional flow of the fault currents, in the same manner as diode (D) in series with variable resistor (R ) of Brenneisen. This would lead to a more reliable and predictable protection. As far as Claim 17, Brenneisen discloses the use of an inductance (5) in series with the thyristor (17).

Applicant's arguments filed 9/18/2007 have been fully considered but they are not persuasive. Applicant's main argument is that there is no support for the Examiner's position that Brenneisen discloses thyristors, but it is well known in the converter art to utilize IGBTs. It would have been obvious to utilize IGBTs for the switching elements as they are more easily shut-off than thyristors. To illustrate the well known aspect and to support the Examiner's position, Bijlenga (5,946,178) has

been cited. For example, see Figure 3. Applicant further argues that those of ordinary skill in the art, prior to the instant application, would not have used IGBTs; the citation of Bijlenga (5,946,178) proves otherwise.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ronald W. Leja whose telephone number is (571)272-2053. The examiner can normally be reached on Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Sherry can be reached on (571)272-2800. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Ronald W Leja  
Primary Examiner  
Art Unit 2836

rwl  
December 25, 2007

*12/25/07*